Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application. Please cancel claim 2 and amend the claims as follows:

Listing of Claims:

Claim 1 (Currently Amended): A graphics processing unit, comprising:

a memory for storing pixel data in binary form, wherein the pixel data are in a red, green and blue (RGB) color space; and

a display pipeline having an RGB color space to a luminance color, blue color difference and red color difference (YCbCr) color space converter module configured to convert the pixel data from the RGB color space to the YCbCr color space, wherein the RGB to YCbCr color space converter module generates a luminance color component (Y) of the pixel data by adding ¼ of a red color (R) component of the pixel data to ½ of a green color (G) component of the pixel data and ¼ of a blue color (B) component of the pixel data, wherein the RGB to YCbCr color space converter module determines the luminance color component (Y) of the pixel data by:

left shifting the green color (G) component of the pixel data by one bit;

adding the result of the left shifting to the red color (R) component of the pixel data and the blue color (B) component of the pixel data; and

right shifting the sum by two bits.

Claim 2 (Cancelled)

Claim 3 (Currently Amended): The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module ~~determines the luminance color component (Y) of the pixel data by:~~

~~left shifting the green color (G) component of the pixel data by one bit;~~

~~adding the result to the red color (R) component of the pixel data and the blue color (B) component of the pixel data;~~

~~performing~~ performs a numerical rounding operation on the (G) component prior to the right shifting of the sum to reduce errors and improve the accuracy of the result[[; and]]

~~right shifting the sum by two bits~~.

Claim 4 (Original): The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component; and dividing the result by two.

Claim 5 (Original): The graphics processing unit of claim 1, wherein the RGB to YCbCr color space converter module determines a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component of the pixel data; and right shifting the sum by one bit.

Claim 6 (Original): The graphics processing unit of claim 4, wherein the RGB to YCbCr color space converter module determines a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and dividing the result by two.

Claim 7 (Original): The graphics processing unit of claim 5, wherein the RGB to YCbCr color space converter module determines a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and right shifting the result by one bit.

Claim 8 (Original): The graphics processing unit of claim 1, further comprising a memory management unit for reading the pixel data from the memory and passing the pixel data to the display pipeline.

Claim 9 (Original): The graphics processing unit of claim 1, wherein the display pipeline further comprises a YCbCr to RGB color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module generates the red color (R) component of

the pixel data by adding the luminance color component (Y) to twice the red color difference component (Cr) of the pixel data.

Claim 10 (Currently Amended): The graphics processing unit of claim 9, wherein the red color (R) component of the pixel data is generated by left shifting the red color difference component (Cr) of the pixel data by one bit; and adding the result of the left shifting to the luminance color component (Y) of the pixel data.

Claim 11 (Original): The graphics processing unit of claim 9, wherein the YCbCr to RGB color space converter module further generates the green color (G) component of the pixel data by subtracting the red color difference component (Cr) and the blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

Claim 12 (Original): The graphics processing unit of claim 11, wherein the YCbCr to RGB color space converter module further generates the blue color (B) component of the pixel data by adding the luminance color component (Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data.

Claim 13 (Original): The graphics processing unit of claim 11, wherein the YCbCr to RGB color space converter module further generates the blue color (B) component of the pixel data by left shifting the blue color difference (Cb) component of the pixel data by one bit; and adding the result to the luminance color component (Y) of the pixel data.

Claim 14 (Currently Amended): A graphics processing unit, comprising:

a memory for storing pixel data in a red, green and blue (RGB) color space, wherein the pixel data are in binary form; and

a display pipeline having an RGB color space to a luminance color, blue color difference and red color difference (YCbCr) color space converter module configured to convert the pixel data from the RGB color space to the YCbCr color space, wherein the RGB to YCbCr color space converter module determines a luminance color component (Y) of the pixel data by:

left shifting a green color (G) component of the pixel data by one bit;

adding the result of the left shifting to a red color (R) component of the pixel data and a blue color (B) component of the pixel data; and

right shifting the sum by two bits.

Claim 15 (Currently Amended): A graphics processing unit, comprising:

a memory for storing pixel data in a luminance, blue color difference and red color difference (YCbCr) color space; and

a display pipeline having a YCbCr color space to a red, blue and green (RGB) color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module determines a red color (R) component of the pixel data by adding a luminance color component (Y) of the pixel data to twice a red color difference component (Cr) of the pixel data, the Cr component being left shifted by one bit.

Claim 16 (Currently Amended): A graphics processing unit, comprising:

a memory for storing pixel data in a luminance, blue color difference and red color difference (YCbCr) color space, wherein the pixel data are in binary form; and

a display pipeline having a YCbCr color space to a red, blue and green (RGB) color space converter module configured to convert the pixel data from the YCbCr color space to the RGB color space, wherein the YCbCr to RGB color space converter module determines a red color (R) component of the pixel data by left shifting a red color difference component [[(Cr)]] (Cb) of the pixel data by one bit; and adding the result of the left shifting to a luminance color component (Y) of the pixel data.

Claim 17 (Currently Amended): A method for processing pixel data, comprising:

receiving the pixel data in a red, blue and green (RGB) color space; and

converting the pixel data from the RGB color space to a luminance, blue color difference and red color difference (YCbCr) color space by adding ¼ of a red color (R) component of the pixel data to ½ of a green color (G) component of the pixel data and ¼ of a blue color (B) component of the pixel data to generate a luminance color component (Y) of the pixel data, wherein the RGB to YCbCr color space converter module determines the luminance color component (Y) of the pixel data by:

left shifting the green color (G) component of the pixel data by one bit;

adding the result of the left shifting to the red color (R) component of the pixel data and the blue color (B) component of the pixel data; and

right shifting the sum by two bits.

Claim 18 (Currently Amended): The method of claim 17, wherein converting the pixel data from the RGB color space to YCbCr color space ~~further~~ comprises generating a blue color difference component (Cb) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the blue color (B) component; and dividing the result by two.

Claim 19 (Currently Amended): The method of claim 18, wherein converting the pixel data from the RGB color space to YCbCr color space ~~further~~ comprises generating a red color difference component (Cr) of the pixel data by subtracting the luminance color component (Y) of the pixel data from the red color (R) component of the pixel data; and dividing the result by two.

Claim 20 (Currently Amended): The method of claim 19, ~~further~~ comprising converting the pixel data from the YCbCr color space to the RGB color space by adding the luminance color component (Y) of the pixel data to twice the red color difference component (Cr) of the pixel data to generate the red color (R) component of the pixel data wherein the Cr component is shifted left by one bit.

Claim 21 (Currently Amended): The method of claim 20, wherein converting the pixel data from the YCbCr color space to the RGB color space ~~further~~ comprises generating the green color (G) component of the pixel data by subtracting the red color difference component (Cr) of the pixel data and the blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

Claim 22 (Currently Amended): The method of claim 21, wherein converting the pixel data from the YCbCr color space to the RGB color space ~~further~~ comprises generating the blue color (B) component of the pixel data by adding the luminance color component

(Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data, wherein the Cb component is shifted left by one bit.

Claim 23 (Currently Amended): A method for processing pixel data, comprising:

receiving the pixel data in a luminance, blue color difference and red color difference (YCbCr) color space; and

converting the pixel data from the YCbCr color space to a red, blue and green (RGB) color space by adding a luminance color component (Y) to twice a red color difference component (Cr) of the pixel data, the Cr component being left shifted by one bit, to generate a red color (R) component of the pixel data.

Claim 24 (Original): The method of claim 23, wherein converting the pixel data from the YCbCr color space to RGB color space further comprises generating a green color (G) component of the pixel data by subtracting a red color difference component (Cr) of the pixel data and a blue color difference component (Cb) of the pixel data from the luminance color component (Y) of the pixel data.

Claim 25 (Currently Amended): The method of claim 24, wherein converting the pixel data from the YCbCr color space to RGB color space further comprises generating a blue color (B) component of the pixel data by adding the luminance color component (Y) of the pixel data to twice the blue color difference component (Cb) of the pixel data, the Cb component being left shifted by one bit.

Claim 26 (Original): The method of claim 25, further comprising converting the pixel data from the RGB color space to the YCbCr color space by generating the luminance color component (Y) of the pixel data by adding ¼ of the red color (R) component of the pixel data to ½ of the green color (G) component of the pixel data and ¼ of the blue color (B) component of the pixel data.

Claim 27 (New): The graphics processing unit of claim 14 including performing a numerical rounding operation on the G component prior to the right shifting of the sum to reduce errors and improve the accuracy of the result.

Claim 28 (New): The graphics processing unit of claim 3 including adding $2^{(S-1)}$ where S is the number of shifts) to the entire sum prior to right shifting the sum.